Temperature, 80° and above.

Month.		°	Month.		°
April	20	82·8	July	3	83·5
,,	21	82·2	,,	6	83·5
May	12	80·0	,,	7	90·7
June	13	80·4	Aug.	9	86·7
,,	15	82 8	,,	10	83·0
,,	16	82 0	,,	12	80·0
,,	17	84·3	,,	13	86·0
,,	18	83·8	,,	14	86·5
,,	19	88·9	,,	15	88·5
July	1	86·0	,,	16	83·6
,,	2	88·0	,,	17	86 0

Most of the rain fell in thunderstorms, but their area was very limited; the amount in that of June 15 within 5 miles of this place is an example:—

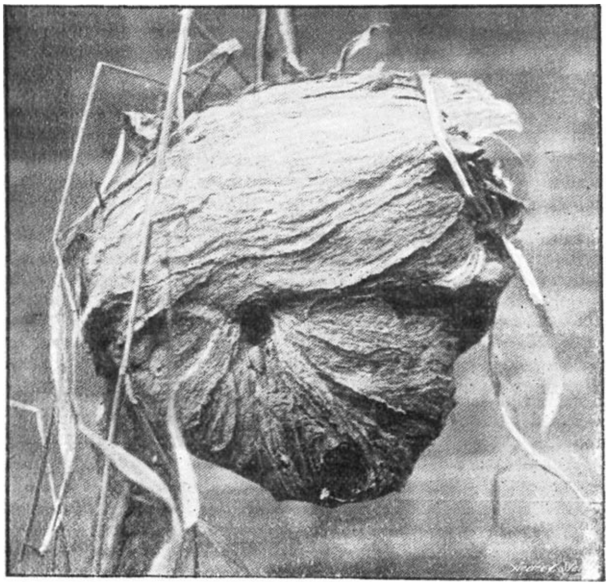
Caldicot Hall ...	0·04	Itton Court	1·50
Dennel Hill	0·17	Piercefield Park	1·79
Wirewoods Green	0·56	The Mount, Chepstow	1 96
Shirenewton Hall	1·01		

		in.		in.
The rainfall in	May	was 2·6 ;	of this	2·4 fell from 15th to 20th.
,,	June	,, 1·8	,,	1 0 fell on 15th.
,,	July	,, 2·9	,,	1·1 fell from 10th to 15th, and 1·0 on 18th and 19th.
,,	Aug. (to 17th)	,, 1·8	,,	1·0 fell on 1st to 3rd, and 0·6 on 10th.

Thus, of the total rainfall (9·7), 7·1 inches fell on 17½ days out of the 170 days. On August 9 there was no rain, but more lightning than I had seen since the memorable storm of August 9, 1843. It commenced at 9 p.m. and lasted five hours. From very frequent counting there could not be less than 10,000 flashes (the estimate was 11,540). For three hours the most number of flashes in a minute was 121, and the least 39. Before the storm of June 15 the ground was dry to the depth of 15 inches, and this 1 inch of rain only penetrated 2 inches. The long intervals of drought have parched the ground, so that we are still suffering from want of rain.

The Drought and Heat of 1893.

The results of an unusual occurrence like the present season show as clearly as instrumental observations the exceptional character. We have a very near copy of the drought of 1868–1870; *i.e.* Monmouthshire is repeating what in 1868–70 occurred in Nottinghamshire. Flowers and fruit have been a month earlier than usual, their period has been of short duration, and insect pests have been very great. There has been an extraordinary abundance of apples, pears, plums, cherries, gooseberries, currants, field mushrooms, butterflies, moths, flies, caterpillars, cuckoo-spit aphis, slugs, and wasps. The tree-wasp, which is rare, has had many nests, and, as the structure is not generally known, my son has taken the enclosed photograph, which clearly shows it. The tree-wasp's nest is built much earlier than that of the ordinary wasp, and equally large, a low bush being the situation usually selected. Nightingales and cuckoos have been very numerous. Grass is now being mown for hay, and four to five acres will only yield a ton, whilst the straw of corn is shorter than ever before known. Trees are also very bare of leaves. Water is scarce, as many springs have been dry for some weeks. In June the trees and shrubs were as if varnished from extensive honeydew, which the thunderstorm cleared away. Strawberries are blooming a second time, and there are many plants seeding that do not usually seed here.



E. J. Lowe.

Some Recent Restorations of Dinosaurs.

Under the above title, an illustrated article, by Mr. R. Lydekker, appears in Nature, July 27, 1893, p. 302. This purports to give a summary of what has recently been done in restoring certain remarkable forms of extinct reptiles. Most of the statements made are correct, but with them are a number of serious errors that may mislead readers not familiar with the subject. As the restorations given are, with one exception, my own, and represent indirectly several years' work in the field and museum, I trust you will allow me to call attention to some mistakes in this article, which were perhaps made by Mr. Lydekker through inadvertence, or from his not having seen the specimens described.

In the introduction, the date 1878 is given for the first of my memoirs on Jurassic Dinosaurs; whereas in the previous year I described (1) the earliest of the huge Sauropoda found in America, proposing the family name Atlantosauridæ for the genera Atlantosaurus and Apatosaurus; (2) various carnivorous Dinosaurs of the present order Theropoda, including the genera Allosaurus and Dryptosaurus; (3) the Stegosauria, represented by Stegosaurus, the first American genus of the group; and (4) several small forms of true Ornithopoda, including Nanosaurus. The family Atlantosauridæ, the sub-order Stegosauria, and the genera here mentioned, were thus established by me in 1877 in the *American Journal of Science*, vol. xiv.; a small matter in itself, but the beginning of a long investigation.

The first restoration given by Mr. Lydekker, Fig. 1, is that of my *Brontosaurus excelsus*, reduced from an outline sketch published, as stated, in August, 1883; but no reason is assigned for not using, especially in a summary of recent work, my more complete restoration of 1891, which includes the results of much additional study. This figure represents a typical member of the order I have called Sauropoda, but in the text the name used is Sauropsida, a much more comprehensive term.

The second restoration, Fig. 2, called "A Carnivorous Dinosaur," is said to have been reproduced from my figures. This must be a mistake. It is evidently printed from one of my *clichés*, and is certainly used without authority. Moreover, the name I gave to the animal represented (*Ceratosaurus nasicornis*) is not even mentioned, but it is incidentally stated that my genus Ceratosaurus, based on this unique specimen, is inseparable from the European Megalosaurus. This statement could not be fairly made by anyone familiar with the type specimens of the two genera, or even with the literature. Only a few authentic remains of Megalosaurus are known, and I have studied all the important specimens with care. There is no evidence that the skulls are identical in the two forms, and much against it. The plano-concave cervical vertebræ of Ceratosaurus, unknown in any other Dinosaur, are radically different from the convexo-concave vertebræ of Megalosaurus. The complete co-ossification of all the pelvic elements of Ceratosaurus is another distinctive character, and the union of the metatarsals also is important. An elementary knowledge of the structure of Dinosaurs is quite sufficient to show any anatomist that the two belong to genera widely different, and to indicate for them distinct families. Additional remains, obtained since Ceratosaurus was described, have in great part removed the objection that the co-ossification mentioned may have been

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pathological. My restoration will be found in the American *Journal of Science* for October, 1892, and in the *Geological Magazine* for April, 1893.

The third figure given by Mr. Lydekker is a reduced copy of my restoration of *Stegosaurus ungulatus*, published in August, 1891. This reptile he calls Hypsirophus, giving that name priority over Stegosaurus, but without citing any authority for such a statement. A single reference to the literature would have proved this to be a mistake, as Stegosaurus was published by me in 1877, as above stated (*American Journal of Science* (3), vol. xiv. p. 513), while the name Hypsirophus was given by Cope in 1878 (*American Naturalist*, vol. xii. p. 188). Another error of less importance is in regard to the specimen on which the restoration is based, although this was clearly stated in the description accompanying my figure. The type specimen of *Stegosaurus ungulatus* Mr. Lydekker apparently confuses with a second skeleton, of a different species, which was even more perfect when found.

The fourth restoration given is a reduced copy of my figure of the skeleton of *Triceratops prorsus*, which, like the preceding restorations, has already been published by me, both in the *American Journal of Science* and in the *Geological Magazine*. Here again Mr. Lydekker rejects my generic name Triceratops, and even puts that and another genus of mine (Ceratops) as synonyms of Agathaumas without giving any reasons for doing so. The type specimens of the literature would show any candid anatomist that the three forms named, and another which I called Torosaurus, are all distinct genera, separated by well-defined characters. These characters I have given in detail in the *American Journal of Science*, accompanied by accurate figures of the forms I have described (vol. xliii. pp. 81-84, plates ii. and iii., January, 1892).

The remaining restoration given in Fig. 5 represents a well-known skeleton of Iguanodon in the Royal Museum of Belgium. In regard to this figure I have at present nothing to say, except that I have carefully studied the original specimen and those found with it, having made several visits to Brussels for this purpose.

The omissions from this article are perhaps as noteworthy as what it contains. No reference is made to two restorations of American Dinosaurs which I have recently published; Claosaurus from the Cretaceous, and Anchisaurus from the Triassic, although each is based on a nearly perfect skeleton. Both of these restorations have appeared in the *American Journal of Science* and also in the *Geological Magazine* within the past year. Mr. Lydekker likewise omits the restoration of Megalosaurus, which he has lately given to the public, although many palæontologists would be glad to know more about it, especially about the remains on which it is based.

Mr. Lydekker begins his article by referring to the discouragements of palæontologists in the investigation of fossil vertebrates, but ends with some words of encouragement. He might have added that one discouragement to active workers who devote years to exploration and study is to have the results of their labour used without due credit, or disparaged by those who do not understand them.

O. C. MARSH.

Yale University, New Haven, Conn., August 15.

Insects Attracted by Solanum.

SIR JOHN LUBBOCK, in his "British Wild Flowers in Relation to Insects," remarks (p. 133) that *Solanum* is little visited by insects. Darwin, in "Effects of Cross and Self Fertilisation," has some observations (p. 387) to the same effect. It will therefore be useful to record that, however it may be with European species, an abundant *Solanum* of New Mexico is very attractive to insects. The species in question is *S. elæagnifolium*, Cav., which has deep lilac flowers not unlike those of the potato. I was especially successful in capturing interesting aculeate hymenoptera on this plant, as the following list will show. All listed were taken in Las Cruces, and all (except the *Megacilissa*, July 12) on July 13.

Hymenoptera taken on Solanum elæagnifolium, 1893.

Ammophila pruinosa, Cr. ♀.
,, *varipes*, Cr.
Anthophora urbana, Cr. ♀.
Halictus, sp. ♀.
Megacilissa gloriosa, Fox.
Melissodes menuacha, Cr. var.? ♀
Myzine frontalis, Cr. MS.
Mysson texanus, Cr. ♀.
,, n. sp.
Odynerus bravo, Sauss. (new to U.S. fauna).
Pelopœus servillei, Lef.
Plenoculus, n. sp.
Sphærophthalma coccineohirta, Blake, ♂ var.
Stizus agilis, Sm.
,, *flavus*, Cam. (new to U.S. fauna).
Tachysphex, sp. ♀.
Tachytes elongatus, Cr. ♂.
Trypoxylon texense, Sauss.

For the identifications of the species I am indebted to Mr. W. J. Fox.

T. D. A. COCKERELL.

Agricultural College, Las Cruces, New Mexico, U.S.A.
August 16.

Old and New Astronomy.

IN your notice of the "Old and New Astronomy," your reviewer has, I think, misunderstood the passage with respect to reflecting telescopes, on p. 45, which he refers to as indicating that Mr. Proctor supposed that the image in the principal focus of a reflecting telescope was affected with chromatic aberration or false colouring. Section 97, to which I conclude your reviewer refers, evidently refers to the magnified image which enters the eye of an observer when a "*real image* of an object is submitted to microscopical examination."

No one who knew Mr. Proctor could suppose him to make such a mistake; and that he was perfectly well aware that the image thrown by a reflector was not affected with chromatic aberration, would, I think, have been evident to your reviewer if he had read to the bottom of the page, where in Section 101 Mr. Proctor says:—"Newton supposed that it was impossible to get rid of this defect (*i.e.* chromatic aberration), and therefore turned his attention to the construction of reflectors," a clear proof that Mr. Proctor was in no doubt upon the subject, and only referred in the previous passage to the false colouring of an image formed by a lens.

S. D. PROCTOR-SMYTH.

8 Duncairn Street, Belfast, August 23.

MRS. PROCTOR-SMYTH is in error in supposing that my note referred to Section 97 of "Old and New Astronomy." I referred to Section 100, in which the author says "the pencil of light proceeding from a point such as P, Figs. 14, 16, and 18, consists of rays of different refrangibility, and therefore *not converging to a focal point such as p but to a focal line in the axis of the pencil.*" (The italics are mine.) Fig. 18 is a diagram of the formation of a real image by a reflector. The reference to Fig. 18 may have been a slip; if so, it should have been corrected in the completed volume, as otherwise the student, reading the subsequent paragraphs, to which Mrs. Proctor-Smyth refers, is confused as to what the author really means, and is doubtful whether the reflector does or does not suffer from chromatic aberration.

THE REVIEWER.

Suicide of Rattlesnake.

ANOTHER question raised by the late snake story is, How long does it take to drown snakes? Some of the non-poisonous kind at the Zoological Gardens, in certain states of the weather, are fond of hanging themselves over the edge of their tank, with their heads immersed in the water, for as long as an hour together.

E. L. GARBETT.

August 29.

THE EARLY ASTERISMS.

I.

NOT very many years ago, when the literature of China and India was as a sealed book, and the hieroglyphics of Egypt and the wedges of Babylonia were

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